

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=23; sec=45; ms=526;]

=====

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2009; month=4; day=25; hr=13; min=17; sec=8; ms=814;]

=====

Application No: 10522388

Version No: 1.0

Input Set:

Output Set:

Started: 2009-04-14 15:12:17.444

Finished: 2009-04-14 15:12:19.194

Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 750 ms

Total Warnings: 16

Total Errors: 0

No. of SeqIDs Defined: 29

Actual SeqID Count: 29

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (27)
W 213	Artificial or Unknown found in <213> in SEQ ID (28)
W 213	Artificial or Unknown found in <213> in SEQ ID (29)

SEQUENCE LISTING

<110> Ross, Richard
Sayers, Jon
Artymiuk, Peter

<120> Cytokine Polypeptides and Antibodies Containing A Signal
Sequence for the Attachment of Glycosylphosphatidylinositol

<130> 100042.59316US

<140> 10522388
<141> 2009-04-14

<150> 10/552,388
<151> 2005-10-07

<150> PCT/GB04/001572
<151> 2004-04-07

<150> GB 0324235.1
<151> 2003-10-16

<150> GB 0308088.4
<151> 2003-04-09

<160> 29

<170> PatentIn version 3.5

<210> 1
<211> 794
<212> DNA
<213> Artificial Sequence

<220>
<223> fusion protein comprising growth hormone fused to domain
comprising glycosylphosphatidylinositol

<400> 1
ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60

cactggcagg atcaagtgat gctcatatgt tccaacacat tcccttatcc aggctttttg 120

acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180

ttgaagaagc ctatatcca aaggaacaga agtattcatt cctgcagaac cccagacct 240

ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300

ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgctg 360

agttcctcag gagggtcttc gccaacagcc tgggtgtacg cgctcttgac agcaacgtct 420

atgacctcct aaaggacctg gaggaaggca tccaaacgct gatggggagg ctggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg 600
acaaggtcga gacattcctg cgcacgtgc agtgccgctc tgtggagggc agctgtggct 660
tcggcggtgg aggggatatc gacaagctgg tcaagtgtgg cggcataagc ctgctggttc 720
agaacacatc ctggatgctg ctgctgctgc tttccctctc cctcctccaa gcctagact 780
tcattttctct gtga 794

<210> 2

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to a
glycosylphosphatidyinositol domain

<400> 2

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser
1 5 10 15

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
20 25 30

Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
35 40 45

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
50 55 60

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
65 70 75 80

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
85 90 95

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
100 105 110

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
115 120 125

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
130 135 140

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
 145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
 165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
 180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
 195 200 205

Cys Gly Phe Gly Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly
 210 215 220

Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu
 225 230 235 240

Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu
 245 250

<210> 3

<211> 1607

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone
 receptor

<400> 3

ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactggcagg atcaagtgat gtcatatgt tcccaaccat tcccttatcc aggctttttg	120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt	180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac cccagacct	240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgctgc	360
agttcctcag gagtgtcttc gccaacagcc tgggtgtacgg cgcctctgac agcaacgtct	420
atgacctcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480
gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac	540

```

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg      600
acaaggtcga gacattcctg cgcacgtgc agtgccgctc tgtggagggc agctgtggct      660
tcggcgggccg cgggtggcgga ggtagtggtg gcggaggtag cggtgggcga ggttctggtg      720
gcgagaggttc cgaattcttt tctggaagtg aggccacagc agctatcctt agcagagcac      780
cctggagtct gcaaagtgtt aatccaggcc taaagacaaa ttcttctaag gagecctaaat      840
tcaccaagtg ccgttcacct gagcgagaga ctttttcatg ccactggaca gatgaggttc      900
atcatggtac aaagaaccta ggaccatac agctgttcta taccagaagg aacactcaag      960
aatggactca agaatggaaa gaatgccttg attatgtttc tgctggggaa aacagctgtt     1020
actttaattc atcgtttacc tccatctgga taccttattg tatcaagcta actagcaatg     1080
gtggtacagt ggatgaaaag tgtttctctg ttgatgaaat agtgcaacca gatccacca     1140
ttgccctcaa ctggacttta ctgaacgtca gtttaactgg gattcatgca gatatccaag     1200
tgagatggga agcaccacgc aatgcagata ttcagaaagg atggatggtt ctggagtatg     1260
aacttcaata caaagaagta aatgaaacta aatggaaaat gatggaccct atattgacaa     1320
catcagttcc agtgactca ttgaaagtgg ataaggaata tgaagtgcgt gtgagatcca     1380
aacaacgaaa ctctggaaat tatggcgagt tcagtgaggt gctctatgta acacttcctc     1440
agatgagcca atttacatgt gaagaagatt tctacggcgg tggaggggat atcgacaagc     1500
tgggtcaagtg tggcggcata agcctgctgg ttcagaacac atcctggatg ctgctgctgc     1560
tgctttccct ctcctcctc caagccctag acttcatttc tctgtga      1607

```

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone
receptor

<400> 4

```

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser
1           5           10           15

```

```

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
          20           25           30

```

Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
35 40 45

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
50 55 60

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
65 70 75 80

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
85 90 95

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
100 105 110

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
115 120 125

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
130 135 140

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
195 200 205

Cys Gly Phe Gly Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
210 215 220

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Phe Phe Ser Gly Ser
225 230 235 240

Glu Ala Thr Ala Ala Ile Leu Ser Arg Ala Pro Trp Ser Leu Gln Ser
245 250 255

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260

265

270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp
 275 280 285

Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr
 290 295 300

Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro
 305 310 315 320

Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe
 325 330 335

Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly
 340 345 350

Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp
 355 360 365

Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly
 370 375 380

Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp
 385 390 395 400

Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu
 405 410 415

Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser
 420 425 430

Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val
 435 440 445

Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val
 450 455 460

Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp
 465 470 475 480

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly
 485 490 495

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu
500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu
515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg	120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt	180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac cccagacct	240
ccctctgttt ctgagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgtgc	360
agttcctcag gagtgtcttc gccaacagcc tgggtgtacgg cgcctctgac agcaacgtct	420
atgacctcct aaaggacctt gaggaaggca tccaaacgct gatggggagg ctggaagatg	480
gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac	540
acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtcga gacattcctg cgcctcgtgc agtgccgctc tgtggagggc agctgtggct	660
tggcgggccg cgggtggcgga ggtagtggtg gcggaggtag cgggtggcgga ggttctggtg	720
gcggaggttc cgaattcttc ccaaccattc ctttatccag gctttttgac aacgctagtc	780
tccgcgcccc tegtctgcac cagctggcct ttgacacctt ccaggagttt gaagaagcct	840
atatcccaaa ggaacagaag tattcattcc tgcagaacct ccagacctcc ctctgtttct	900
cagagtctat tccgacacct tccaacaggg aggaaacaca acagaaatcc aacctagagc	960
tgctccgcat ctccctgctg ctcatccagt cgtggctgga gcccgctgcag ttcttcagga	1020
gtgtcttcgc caacagcctg gtgtacggcg cctctgacag caacgtctat gacctcctaa	1080
aggacctaga ggaaggcatc caaacgctga tggggagggt ggaagatggc agcccccgga	1140

ctgggcagat cttcaagcag acctacagca agttcgacac aaactcacac aacgatgacg 1200
 cactactcaa gaactacggg ctgctctact gcttcaggaa ggacatggac aaggtcgaga 1260
 cattcctgcg catcgtgcag tgccgctctg tggagggcag ctgtggcttc ggcggtggag 1320
 gggatatcga caagctggtc aagtgtggcg gcataagcct gctggttcag aacacatcct 1380
 ggatgctgct gctgctgctt tccctctccc tctccaagc cctagacttc atttctctgt 1440
 ga 1442

<210> 6

<211> 470

<212> PRT

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 6

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser
 1 5 10 15

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
 20 25 30

Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
 35 40 45

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
 50 55 60

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
 65 70 75 80

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
 85 90 95

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
 100 105 110

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
 115 120 125

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
 130 135 140

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
195 200 205

Cys Gly Phe Gly Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
210 215 220

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Phe Phe Pro Thr Ile
225 230 235 240

Pro Leu Ser Arg Leu Phe Asp Asn Ala Ser Leu Arg Ala His Arg Leu
245 250 255

His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile
260 265 270

Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu
275 280 285

Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln
290 295 300

Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln
305 310 315 320

Ser Trp Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser
325 330 335

Leu Val Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp
340 345 350

Leu Glu Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser
355 360 365

Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
370 375 380

Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
385 390 395 400

Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
405 410 415

Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Gly Asp
420 425 430

Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
435 440 445

Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Leu Gln Ala
450 455 460

Leu Asp Phe Ile Ser Leu
465 470

<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> growth hormone receptor primer

<400> 7
gcgcggatcc tctagactcg aggtcctac

29

<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> growth hormone receptor primer

<400> 8
gcgccatatg agcatcactt gatcctgcg

29

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> primer amplification of human growth hormone

<400> 9

gcgccatatg ttcccaacca ttcccttata

SEQUENCE LISTING

<110> Ross, Richard
Sayers, Jon
Artymiuk, Peter

<120> Cytokine Polypeptides and Antibodies Containing A Signal
Sequence for the Attachment of Glycosylphosphatidylinositol

<130> 100042.59316US

<140> 10522388
<141> 2009-04-14

<150> 10/552,388
<151> 2005-10-07

<150> PCT/GB04/001572
<151> 2004-04-07

<150> GB 0324235.1
<151> 2003-10-16

<150> GB 0308088.4
<151> 2003-04-09

<160> 29

<170> PatentIn version 3.5

<210> 1
<211> 794
<212> DNA
<213> Artificial Sequence

<220>
<223> fusion protein comprising growth hormone fused to domain
comprising glycosylphosphatidylinositol

<400> 1
ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg 60

cactggcagg atcaagtgat gctcatatgt tccaacacat tcccttatcc aggctttttg 120

acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt 180

ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac cccagacct 240

ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat 300

ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgctgc 360

agttcctcag gagtgtcttc gccaacagcc tgggtgtacg cgctcttgac agcaacgtct 420

atgacctcct aaaggacctg gaggaaggca tccaaacgct gatggggagg ctggaagatg 480

gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac 540

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
 145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
 165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
 180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
 195 200 205

Cys Gly Phe Gly Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly
 210 215 220

Gly Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu
 225 230 235 240

Leu Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu
 245 250

<210> 3

<211> 1607

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone
 receptor

<400> 3

ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactggcagg atcaagtgat gtcatatgt tcccaaccat tcccttatcc aggctttttg	120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt	180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac cccagacct	240
ccctctgttt ctcagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgctgc	360
agttcctcag gagtgtcttc gccaacagcc tgggtgtacgg cgcctctgac agcaacgtct	420
atgacctcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480
gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac	540

```

acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg      600
acaaggtcga gacattcctg cgcacgtgc agtgccgctc tgtggagggc agctgtggct      660
tcggcgggccg cgggtggcgga ggtagtggtg gcggaggtag cggtgggcga ggttctggtg      720
gcgagaggttc cgaattcttt tctggaagtg aggccacagc agctatcctt agcagagcac      780
cctggagtct gcaaagtgtt aatccaggcc taaagacaaa ttcttctaag gagecctaaat      840
tcaccaagtg ccgttcacct gagcgagaga ctttttcatg ccactggaca gatgaggttc      900
atcatggtac aaagaaccta ggaccatac agctgttcta taccagaagg aacactcaag      960
aatggactca agaatggaaa gaatgccttg attatgtttc tgctggggaa aacagctgtt     1020
actttaattc atcgtttacc tccatctgga taccttattg tatcaagcta actagcaatg     1080
gtggtacagt ggatgaaaag tgtttctctg ttgatgaaat agtgcaacca gatccacca     1140
ttgccctcaa ctggacttta ctgaacgtca gtttaactgg gattcatgca gatatccaag     1200
tgagatggga agcaccacgc aatgcagata ttcagaaagg atggatggtt ctggagtatg     1260
aacttcaata caaagaagta aatgaaacta aatggaaaat gatggaccct atattgacaa     1320
catcagttcc agtgtactca ttgaaagtgg ataaggaata tgaagtgcgt gtgagatcca     1380
aacaacgaaa ctctggaaat tatggcgagt tcagtgaggt gctctatgta acacttcctc     1440
agatgagcca atttacatgt gaagaagatt tctacggcgg tggaggggat atcgacaagc     1500
tgggtcaagtg tggcggcata agcctgctgg ttcagaacac atcctggatg ctgctgctgc     1560
tgctttccct ctcctcctc caagccctag acttcatttc tctgtga      1607

```

<210> 4

<211> 525

<212> PRT

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone
receptor

<400> 4

```

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser
1           5           10           15

```

```

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
          20           25           30

```

Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
35 40 45

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
50 55 60

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
65 70 75 80

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
85 90 95

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
100 105 110

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
115 120 125

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
130 135 140

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
195 200 205

Cys Gly Phe Gly Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
210 215 220

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Phe Phe Ser Gly Ser
225 230 235 240

Glu Ala Thr Ala Ala Ile Leu Ser Arg Ala Pro Trp Ser Leu Gln Ser
245 250 255

Val Asn Pro Gly Leu Lys Thr Asn Ser Ser Lys Glu Pro Lys Phe Thr

260

265

270

Lys Cys Arg Ser Pro Glu Arg Glu Thr Phe Ser Cys His Trp Thr Asp
 275 280 285

Glu Val His His Gly Thr Lys Asn Leu Gly Pro Ile Gln Leu Phe Tyr
 290 295 300

Thr Arg Arg Asn Thr Gln Glu Trp Thr Gln Glu Trp Lys Glu Cys Pro
 305 310 315 320

Asp Tyr Val Ser Ala Gly Glu Asn Ser Cys Tyr Phe Asn Ser Ser Phe
 325 330 335

Thr Ser Ile Trp Ile Pro Tyr Cys Ile Lys Leu Thr Ser Asn Gly Gly
 340 345 350

Thr Val Asp Glu Lys Cys Phe Ser Val Asp Glu Ile Val Gln Pro Asp
 355 360 365

Pro Pro Ile Ala Leu Asn Trp Thr Leu Leu Asn Val Ser Leu Thr Gly
 370 375 380

Ile His Ala Asp Ile Gln Val Arg Trp Glu Ala Pro Arg Asn Ala Asp
 385 390 395 400

Ile Gln Lys Gly Trp Met Val Leu Glu Tyr Glu Leu Gln Tyr Lys Glu
 405 410 415

Val Asn Glu Thr Lys Trp Lys Met Met Asp Pro Ile Leu Thr Thr Ser
 420 425 430

Val Pro Val Tyr Ser Leu Lys Val Asp Lys Glu Tyr Glu Val Arg Val
 435 440 445

Arg Ser Lys Gln Arg Asn Ser Gly Asn Tyr Gly Glu Phe Ser Glu Val
 450 455 460

Leu Tyr Val Thr Leu Pro Gln Met Ser Gln Phe Thr Cys Glu Glu Asp
 465 470 475 480

Phe Tyr Gly Gly Gly Asp Ile Asp Lys Leu Val Lys Cys Gly Gly
 485 490 495

Ile Ser Leu Leu Val Gln Asn Thr Ser Trp Met Leu Leu Leu Leu Leu
500 505 510

Ser Leu Ser Leu Leu Gln Ala Leu Asp Phe Ile Ser Leu
515 520 525

<210> 5

<211> 1442

<212> DNA

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 5

ggatcctcta gactcgaggt cctacaggta tggatctctg gcagctgctg ttgaccttgg	60
cactggcagg atcaagtgat gctcatatgt tcccaaccat tcccttatcc aggctttttg	120
acaacgctag tctccgcgcc catcgtctgc accagctggc ctttgacacc taccaggagt	180
ttgaagaagc ctatatccca aaggaacaga agtattcatt cctgcagaac cccagacct	240
ccctctgttt ctgagagtct attccgacac cctccaacag ggaggaaaca caacagaaat	300
ccaacctaga gctgctccgc atctccctgc tgctcatcca gtcgtggctg gagcccgtgc	360
agttcctcag gagtgtcttc gccaacagcc tgggtgtacgg cgcctctgac agcaacgtct	420
atgacctcct aaaggaccta gaggaaggca tccaaacgct gatggggagg ctggaagatg	480
gcagcccccg gactgggcag atcttcaagc agacctacag caagttcgac acaaactcac	540
acaacgatga cgcactactc aagaactacg ggctgctcta ctgcttcagg aaggacatgg	600
acaaggtcga gacattcctg cgcctcgtgc agtgccgctc tgtggagggc agctgtggct	660
tggcgggccg cgggtggcgga ggtagtggtg gcggaggtag cgggtggcgga ggttctggtg	720
gcggaggttc cgaattcttc ccaaccattc cttatccag gctttttgac aacgctagtc	780
tccgcgcccc tegtctgcac cagctggcct ttgacacctt ccaggagttt gaagaagcct	840
atatcccaaa ggaacagaag tattcattcc tgcagaacct ccagacctcc ctctgtttct	900
cagagtctat tccgacacct tccaacaggg aggaaacaca acagaaatcc aacctagagc	960
tgctccgcat ctccctgctg ctcatccagt cgtggctgga gccctgacag ttcttcagga	1020
gtgtcttcgc caacagcctg gtgtacggcg cctctgacag caacgtctat gacctcctaa	1080
aggacctaga ggaaggcatc caaacgctga tggggaggct ggaagatggc agcccccgga	1140

ctgggcagat cttcaagcag acctacagca agttcgacac aaactcacac aacgatgacg 1200
 cactactcaa gaactacggg ctgctctact gcttcaggaa ggacatggac aaggtcgaga 1260
 cattcctgcg catcgtgcag tgccgctctg tggagggcag ctgtggcttc ggcggtggag 1320
 gggatatcga caagctggtc aagtgtggcg gcataagcct gctggttcag aacacatcct 1380
 ggatgctgct gctgctgctt tccctctccc tctccaagc cctagacttc atttctctgt 1440
 ga 1442

<210> 6

<211> 470

<212> PRT

<213> Artificial Sequence

<220>

<223> fusion protein comprising growth hormone fused to growth hormone

<400> 6

Met Asp Leu Trp Gln Leu Leu Leu Thr Leu Ala Leu Ala Gly Ser Ser
 1 5 10 15

Asp Ala His Met Phe Pro Thr Ile Pro Leu Ser Arg Leu Phe Asp Asn
 20 25 30

Ala Ser Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr
 35 40 45

Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe
 50 55 60

Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr
 65 70 75 80

Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys Ser Asn Leu Glu Leu Leu
 85 90 95

Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp Leu Glu Pro Val Gln Phe
 100 105 110

Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala Ser Asp Ser
 115 120 125

Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu
 130 135 140

Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys
145 150 155 160

Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu
165 170 175

Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys
180 185 190

Val Glu Thr Phe Leu Arg Ile Val Gln Cys Arg Ser Val Glu Gly Ser
195 200 205

Cys Gly Phe Gly Gly Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
210 215 220

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Phe Phe Pro Thr Ile
225 230 235 240

Pro Leu Ser Arg Leu Phe Asp Asn Ala Ser Leu Arg Ala His Arg Leu
245 250 255

His Gln Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile
260 265 270

Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu
275 280 285

Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln
290 295 300

Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln
305 310 315 320

Ser Trp Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser
325 330 335

Leu Val Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp
340 345 350

Leu Glu Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser
355 360 365

Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr
370 375 380

Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr
385 390 395 400

Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val
405 410 415

Gln Cys Arg Ser Val Glu Gly Ser Cys Gly Phe Gly Gly Gly Gly Asp
420 425 430

Ile Asp Lys Leu Val Lys Cys Gly Gly Ile Ser Leu Leu Val Gln Asn
435 440 445

Thr Ser Trp Met Leu Leu Leu Leu Ser Leu Ser Leu Leu Gln Ala
450 455 460

Leu Asp Phe Ile Ser Leu
465 470

<210> 7
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> growth hormone receptor primer

<400> 7
gcgcggatcc tctagactcg aggtcctac

29

<210> 8
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> growth hormone receptor primer

<400> 8
gcgccatatg agcatcactt gatcctgcg

29

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> primer amplification of human growth hormone

<400> 9

gcgccatatg ttcccaacca ttcccttata